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10/720,507	11/24/2003	Jahangir S. Rastegar	10017	4584

7590  
Thomas Spinelli  
2 Sipala Court  
East Northport, NY 11731

06/11/2007

EXAMINER
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BARTON, JEFFREY THOMAS

ART UNIT	PAPER NUMBER
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1753

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06/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/720,507

Applicant(s)

RASTEGAR ET AL.

Examiner

Jeffrey T. Barton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 and 19-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-18 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-5 and 13-18, drawn to a method for generating power, classified in class 136, subclass 201.
  - II. Claims 6-13 and 19-27, drawn to an apparatus for generating power, classified in class 136, subclass 205.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and (II, III, or IV) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method can be practiced by a materially different apparatus, such as an apparatus in which the radiation absorption is performed by a thermionic device.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required

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because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

5. This application contains claims directed to the following patentably distinct species:

A: A backup generator (Claim 25)

B: A lawn mower (Claim 26)

C: A tank (Claim 27)

The species are independent or distinct because they are completely different, mutually exclusive devices in which the claimed power generation apparatus is used. They will require separate searches

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 6-12 and 19-24 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after

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the election, applicant must indicate which are readable upon the elected species.

MPEP § 809.02(a).

6. During a telephone conversation with Thomas Spinelli on 1 June 2007 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-5 and 13-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-12 and 19-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagai.

Regarding claim 1, Nagai teaches a method of generating power (Used in the embodiment of Figure 5) comprising providing a heat source that emits radiation (Column 12, lines 26-43; sunlight or other light source can be used), generating a first portion of the power from absorption of radiation (Photovoltaics on fan 19; Column 12, lines 41-59; Column 13, lines 7-28), and generating a second portion of the power from a temperature difference between a first element (7a) heated by the heat source and a second element (7b) that is thermally insulated from the first element. (Column 12, lines 37-50; Column 13, lines 28-36)

Regarding claim 2, Nagai teaches that the fins of fan 19 act as a radiator cooling the second element 7b. (Column 13, lines 28-36)

10. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Newman.

Regarding claim 1, Newman discloses a method for generating power (In the apparatus of Figure 1) comprising: providing a heat source (2) with an output of radiation as claimed (Column 4, lines 5-8); generating a first portion of power from absorption of the radiation (Column 4, lines 59-62; Abstract); and generating a second portion of the power from a temperature difference between two elements (e.g. 3, 28 and 6, 8; Column 4, lines 5-41) as claimed. (Abstract)

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Regarding claims 4 and 5, Newman discloses that heat source 2 is a tungsten block that is heated such that it glows, giving off visible light. (Column 4, lines 5-8)

11. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Paramonov et al.

Regarding claim 1, Paramonov et al disclose a method for generating power (Figure 1) comprising providing a heat source (Conduit carrying A that radiates heat to thermophotovoltaic device 16; alternatively conduit carrying G radiates heat to thermionic device 12; Paragraph 0014); generating a first portion of power from absorption of the radiation (Thermophotovoltaic device 16 absorbs radiation to generate power; alternatively, thermionic device 12 absorbs heat from source conduit carrying G; Paragraph 0014); and generating a second portion of the power from a temperature difference between first and second elements that are at least partially insulated from each other. (AMTEC 12 relies upon such a temperature differential; alternatively thermoelectric device 14 or AMTEC 16; Paragraph 0014)

Regarding claims 2 and 3, Paramonov discloses cooling water C cooling device 16, which would clearly generate heated water. Since waste heat from elements 12 and 14 are used to heat device 16, this cooling water provides cooling for each element 12, 14, and 16.

Regarding claims 4 and 5, combustion of Fuel F in Air A to produce gas G (Paragraphs 0015-0016) is used to provide temperatures of 1300-2500K. The conduit carrying gas G will emit visible light at such temperatures.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).



15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Newman.

Newman discloses a method as described above in addressing claims 1 and 4.

Newman does not explicitly disclose optimizing the emissions of heat source 2 to maximize efficiency of photovoltaic array 10.

However, it would have been obvious to one having ordinary skill in the art at the time the invention to select an operating temperature of heat source 2 to maximize the efficiency of the solar cells, in order to maximize the efficiency of the system. This is a matter of optimization, which does not provide a patentable difference when all other limitations are taught by the prior art. Note MPEP §2144.05, which states in part, "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paramonov et al.

Paramonov et al disclose a method as described above in addressing claims 1-4.

Paramonov et al do not explicitly disclose optimizing the emissions of the heat source to maximize efficiency of thermophotovoltaic array 16 or thermionic device 12.

However, it would have been obvious to one having ordinary skill in the art at the time the invention to select combustion conditions to tailor the temperature of the heat source to maximize the efficiency of the thermionic device or thermophotovoltaic cells, in order to maximize the efficiency of the system. This is a matter of optimization, which does not provide a patentable difference when all other limitations are taught by the prior art. Note MPEP §2144.05, which states in part, "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

***Allowable Subject Matter***

17. Claims 13-18 are allowed.

18. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance is the generation of power "across a rotatable joint" through provision of the heat source on a first rotatable element, while the absorption of radiation and temperature difference provided on a second rotatable element provide the power. The closest prior art documents are considered to be Nagai and Bell. (US 2002/0148236 A1)

Nagai teaches rotatable elements in the embodiment of Figure 5, for example, but teaches that photovoltaic material is provided on fins 19 that are located on a rotatable element, while the thermoelectric device 7 is located on the static central column clearly shown in the figure. There is no teaching or suggestion of providing both thermoelectric and photovoltaic devices on the rotating element.

Bell teaches a rotatable thermoelectric power system (e.g. Figures 1A-1G), but the heat source (e.g. Hot fluid 105/106) is not located on an element that is rotatable relative to the element on which the thermoelectric device (104) is located, and there is no teaching or suggestion of generation of power from the absorption of radiation.

Therefore, the claims are considered to be patentably distinct from the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morimoto et al (US 4,500,741) disclose another system and method involving photovoltaic and thermoelectric generation of power.

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20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571) 272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTB  
6 June 2007



NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700